"Studies on Various Decomposting and Management Practices of Domestic and Municipal Solid Waste Materials in Nanded District."

A

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By

Miss. Sony Bhimrao Waghmare

Under the guidance of

Dr. R.G. Pawale

Associate Professor and Research Guide

Department of Environmental Science

Indira Gandhi Sr. College CIDCO, New Nanded

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Introduction

Waste management refers to the various schemes to manage and dispose of wastes. It can be by discarding, destroying, processing, recycling, reusing, or controlling wastes. The prime objective of waste management is to reduce the amount of unusable materials and to avert potential health and environmental hazards.

Domestic waste is one of the most important components of municipal waste. It include food waste, paper, glass, metals, plastics, textiles, etc. A large part of domestic wastes consists of plants and animals waste such as vegetables, fruit peel, bones and meat waste, and chicken and fish waste, which are considered as wet wastes. Paper and cardboard, waste, newspapers, books, notebooks, and wrapping paper also make up another large portion of the wastes. Plastics, disposable dishes, toys, metal and glass cans are another part of domestic wastes. Different definitions and classifications have been presented in various publications and books to describe the components of municipal solid waste. **(Mohammad Hadi Dehghani 2021).**

Domestic waste has become one of the most significant causes of severe damage to the rural eco-environment because of the large amounts of waste discharged and improper disposal **(Wang and Lu. 2006).**

In order to eliminate contaminations from domestic waste, a waste management system including waste collection, transportation, and treatment have been established. First, a waste treatment and disposal plan was made to restrict improper disposal and clean-up of existing piles of waste near canals, roads, and houses. Second, a domestic waste treatment collection network, including certain numbers of waste collection sites and transfer stations, was built in big villages and counties. Third, waste reclamation technologies, such as methane fermentation, composting, and the production of compound fertilizers, were developed and applied **(C. Wang 2014).**

Following are some solid waste components and their definition or meaning:

Solid waste components	Definition and Characteristics
Garbage	Perishable substances that are obtained from the preparation, cooking, and consumption of food, as well as vegetables and fruits
Rubbish	This waste is the result of domestic activities, institutions, and commercial centres. These are classified as flammable or non-flammable wastes

Ash and residues	It includes waste materials from burning wood, charcoal, coal, and other combustible materials produced at homes or other industries and institutions
Dead animals	These wastes include the carcasses of dead animals and the waste flesh and bones of animals, especially around slaughterhouses
Animal faeces	It includes solid or liquid wastes that an animal produces. These wastes can be used in soil fertility
Human wastes	It includes solid or liquid intestinal residues that if not controlled in the environment can lead to the spread of diseases such as diarrhoea and other intestinal and parasitic diseases

Today everywhere there are problems by plastic materials, fly ash and other materials so we use this material as fibre in civil application according to their properties, the reinforced soil technique allows the most any kind of fill soil, however the use of granular material having good drainage capacity and high internal friction angle is suggested. Earth structure such as highways and airport pavements, embankment, landfills, foundation earth slopes and retaining walls are built with soil reinforcement for improved safety against sliding or bearing failure and to improve the settlement response. In the present investigation HDPE/PET & MPPW (Medical plastic packing waste Stripes) are used as reinforcing material. These fibre strips have adequate tensile strength and retain the same strength for long span of time and steel waste is also used in concrete as a steel aggregate.

The waste materials that are commonly known are blast furnace slag, fly ash, silica fume(from Power Plants) recycled aggregates (from Demolition sites), solid waste, plastic waste (Domestic waste) and rubber waste (commercial waste). Partial replacement of Portland cement with waste materials like blast furnace slag, fly ash, silica fume (from Power plants), recycled aggregates (from Demolition sites), solid waste, plastic waste (Domestic waste) and rubber waste (commercial waste) will be a great help in reducing environmental pollution and also in reduction in manufacturing of cement and other material that required for the construction activities. . One of the major challenges of our present society is the protection of environment.

Environment has become the very important part and parcel of life of all Living things in general, and human beings in particular. Environment now days is being polluted by the number of factors and in the number of forms. Waste is of the very important aspect of environmental pollutions, consists of solid as well As liquid or waste water. Its management is very badly affecting the quality of Environment through environmental pollutions. Here the study of waste and its Management is

very much necessary. The present study tries to examine waste Management practices in Nanded district.

Review of Literature

Sahu et al. (2017) Investigated the use of acceptable waste, recycled and reusable materials and methods. The use of swine manure, animal fat, silica fume, roofing shingles, empty palm fruit bunch, citrus peels, cement kiln dust, fly ash, foundry sand, slag, glass, plastic, carpet, tire scraps, asphalt pavement and concrete aggregate in construction is becoming increasingly popular due to the shortage and increasing cost of raw materials.

Tabasaran et al. (1976) Suggested some long term and short term diagnosis of Solid Waste Management basically meant for its smooth functioning.

Wertz (1976) Studied about the economic aspect of a household's decision to produce more or less refuse. He mainly analysed the concept of household behaviour on waste.

Richardson et al (1978) shows that grass-yard waste and newspaper was positively Co-related to the level of income.

Tula Dhār (1996) worked on organic nature of waste which can be used as manure.

Priyadarshi et al. (2020) His findings indicates failure of the existing facilities due to lack of concern, high volume of waste generation, deficient collection space, delayed sanctioning of new landfill sites and a number of open-dump sites which generate fires. He emphasizes the waste characteristics, techniques, adverse environmental impacts, health risks, poor waste management practices and also problems associated with the solid waste management system at the municipal level.

Coaker et al. (2015) studied that, if all the organic waste streams from the kitchens, canteens and animal house are utilized for the bioenergy and organic fertilizer and non-biodegradables can be sold in the secondary market and considerable amount of wealth can be recovered.

Mufed et al. (2008) studied municipal solid waste management is one of the major environmental problems of Indian cities. The researchers have concluded that about 90% MSW is disposed of unscientifically, open dumps and landfills, creating problems to public health and environment.

Germa and Fageda Xavier (2009). This study presents that the total waste volume to recycling does not imply greater costs. The study concludes that economies o scale are clearly available to smaller municipalities and another is private delivery does not imply cost savings but municipalities are running a solid waste service.

Ray Amit (2009);The study concludes by saying that a high degree of bilateral, regional or multilateral cooperation rather than trade in waste may be a better option for these appropriate

capacities expertise and techniques for establishing a modern and environmentally sound waste management model.

Medina Matrin (2010) States that solid waste management in developing countries has received less attention from policy makers and academics, such as air pollution and waste water treatment. Insufficient collection and inadequate disposal generate significant Pollution problems and risks to human health and the environment.

Objectives

The following are the objective of the study;

- To estimate quantum and prevailing treatment practices of municipal solid waste in study area.
- To analyse various properties and environmental impact of municipal solid waste in study area.
- To develop strategies for suitable collection, segregation, recycling treatment methods for municipal solid waste.
- To assess the use of municipal solid waste through eco-friendly methods and application of municipal solid waste for different uses.
- To suggest remedial measures for the better waste disposal management and its utilization
- To estimate the amount of daily domestic waste disposal.
- To identify the waste types and their quantity.
- To analyse spatial pattern of waste disposal.
- To evaluate environmental degradation caused by improper disposal.
- To generate awareness among the common mass and make them realize their moral responsibilities towards quality of environment.

Methods and Materials

The Methods and materials consists of following steps:-

1. Data collection

- The proposed study mainly based on data which gathered from door to door survey and measurement of disposed waste.
- The field survey will be conducted by the investigator through classified random sampling for the whole city.

- The samples are classified into following socio-economic groups on the basis of monthly family income.

2. Data Preparation

- Collected information from the families will be compiled. The prepared data has been classified and tabulated according to our objectives.

3. Data analysis

- The data is analysed with the help of various statistical tool. Distribution pattern is analysed with the help of GIS technique.

4. Composting process

- Decomposable organic matter is separated and composted in this procedure. Yields are stable end products and good soil conditioners. They can be used as a base for fertilizers. Two methods have been used in this process:

A) Open Window Composting

b) Mechanical Composting

Scope of the Work

- To know the generation of the solid waste in the Nanded city.
- To find the source of the solid waste in the Nanded city.
- To know health status of the Nanded city.
- To know and improve the disposal methodology of the waste in the Nanded city.
- Environmental study and management.

Proposed work Plan

Total three year proposed plan:

- First year — Referencing the data
  Collection of data
  Surveying

- Second year - Data Preparation
  Data analysis
  Methods Used for management
  Observation

- Third Year – Conclusion
  Compilation of data
  Report writing
  Final thesis writing

Expected outcomes

Present study is based on various hypothesis which we have formed at the time of initiating the study. Some of them are as follows:

l. Attitude of people from different socio-economic group varies greatly towards the waste disposal.

2. More than half of the families of city do not know the proper disposal method.

3. Large section of society are not aware about solid waste hazards.

5. Most of the people do not segregate the waste produced by them and disposed properly.

6. Only 50% of the families are aware to earn money by selling classified waste to waste-vendors.

7. Slum dwellers do not bother about the quantity of waste and the method of its disposal but if these can be properly segregated and sold then can earn and protect their surrounding environment as well.

8. Tea leaves, vegetable peels and fruit peels can be converted into manure by vermicomposting and used as biogas energy.

10. Vermicomposting practice is very rare phenomenon in city but it can be popularized among the by generating the awareness.

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